



07/15/97

## TYPES, CROSS-NOTING, AND STATUS OF APPLICATIONS

201.06(B)

PTO/SB 14 (10-92)

Approved for use through 05/31/96. OMB 0651-0033  
 Patent and Trademark Office. U.S. DEPARTMENT OF COMMERCE

## REQUEST FORM FOR FILING A PATENT APPLICATION UNDER 37 CFR 1.62

| DOCKET NUMBER | ANTICIPATED CLASSIFICATION OF THIS APPLICATION | PRIOR APPLICATION EXAMINER | ART UNIT |
|---------------|------------------------------------------------|----------------------------|----------|
|               | CLASS                                          | SUBCLASS                   |          |
| F-3278        |                                                |                            | 3203     |

Nguyen

## Address to:

Commissioner of Patents and Trademarks  
 Box FWC  
 Washington, D.C. 20231

This is a Request for filing a ☐ continuation-in-part, ☒ continuation, ☐ divisional application under 37 CFR 1.62 of the prior application Number 08/ 616,538, filed on March 15, 1996 entitled Metal Single Layer Abrasive Cutting Tool Having A Contoured Cutting Surface by the following named inventor(s):

|                         |                     |                          |                            |
|-------------------------|---------------------|--------------------------|----------------------------|
| FULL NAME OF INVENTOR   | FAMILY NAME         | FIRST GIVEN NAME         | SECOND GIVEN NAME          |
|                         | Skeem               | Marcus                   | R.                         |
| RESIDENCE & CITIZENSHIP | CITY                | STATE OR FOREIGN COUNTRY | COUNTRY OF CITIZENSHIP     |
|                         | Northbridge         | Massachusetts            | U.S.A.                     |
| POST OFFICE ADDRESS     | POST OFFICE ADDRESS | CITY                     | STATE & ZIP CODE/COUNTRY   |
|                         | 89 Alana Drive      | Northbridge              | Massachusetts 01534 U.S.A. |
| FULL NAME OF INVENTOR   | FAMILY NAME         | FIRST GIVEN NAME         | SECOND GIVEN NAME          |
|                         | Buljan              | Sergej-Tomislav          |                            |
| RESIDENCE & CITIZENSHIP | CITY                | STATE OR FOREIGN COUNTRY | COUNTRY OF CITIZENSHIP     |
|                         | Acton               | Massachusetts            | U.S.A.                     |
| POST OFFICE ADDRESS     | POST OFFICE ADDRESS | CITY                     | STATE & ZIP CODE/COUNTRY   |
|                         | 23 Washington Drive | Acton                    | Massachusetts 01720 U.S.A. |
| FULL NAME OF INVENTOR   | FAMILY NAME         | FIRST GIVEN NAME         | SECOND GIVEN NAME          |
|                         | Kramp               | Jean                     |                            |
| RESIDENCE & CITIZENSHIP | CITY                | STATE OR FOREIGN COUNTRY | COUNTRY OF CITIZENSHIP     |
|                         | Rumelange           | Luxembourg               | Luxembourg                 |
| POST OFFICE ADDRESS     | POST OFFICE ADDRESS | CITY                     | STATE & ZIP CODE/COUNTRY   |
|                         | 14, Rue Dr Flesch   | Rumelange                | L-3725 Luxembourg          |

☐ Additional inventors are being named on separately numbered sheet(s) attached hereto.

The above identified prior application in which no payment of the issue fee, abandonment of, or termination of proceedings has occurred, is hereby expressly abandoned under 37 CFR 1.62(g) as of the filing date of this new application. Please use all the contents of the prior application file wrapper, including the drawings, as the basic papers for the new application. (No new specification is required, 37 CFR 1.62(e).) (Note: 37 CFR 1.60 may be used for continuation or divisional applications where the prior application is not to be abandoned.)

- ☒ Enter the unentered amendment previously filed on June 2, 1997 under 37 CFR 1.116 in the prior application
- ☒ A preliminary amendment is enclosed.
- ☐ This application is being filed by less than all the inventors named in the application. The Commissioner is requested under 37 CFR 1.62(a) to delete the names of the following person or persons from the prior application who are not inventors of the invention being claimed in this application:

| CLAIMS | (1) FOR                                                                   | (2)NUMBER FILED | (3)NUMBER EXTRA | (4)RATE                       | (5)CALCULATIONS |
|--------|---------------------------------------------------------------------------|-----------------|-----------------|-------------------------------|-----------------|
|        | TOTAL CLAIMS                                                              | 34 - 20 =       | 14              | X \$ 22.00 =                  | \$308.00        |
|        | (37CFR 1.16(c))                                                           |                 |                 |                               |                 |
|        | INDEPENDENT CLAIMS (37 CFR 1.16(b))                                       | 5 - 3 =         | 2               | X \$ 80.00 =                  | 160.00          |
|        | MULTIPLE DEPENDENT CLAIMS (if applicable) (37 CFR 1.16(d))                |                 |                 | + \$260.00 =                  |                 |
|        |                                                                           |                 |                 | BASIC FEE (37 CFR 1.16(a))    | + 770.00        |
|        |                                                                           |                 |                 | Total of above Calculations = | 1238.00         |
|        | Reduction by 50% for filing by small entity (Note 37 CFR 1.9, 1.27, 1.28) |                 |                 |                               |                 |
|        |                                                                           |                 |                 | TOTAL =                       | 1238.00         |

MANUAL OF PATENT EXAMINING PROCEDURE

201.06(B)

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(REQUEST FORM FOR FILING A PATENT APPLICATION UNDER 37 CFR 1.62, Page 2)

4. ☐ A verified statement to establish small entity status under 37 CFR 1.9 and 1.27  
☐ is enclosed  
☐ was filed in the prior application and such status is still proper and desired (37 CFR 1.28(a)).
5. ☒ The Commissioner is hereby authorized to charge fees under 37 CFR 1.16 and 1.17 which may be required, or credit any overpayment to Deposit Account No. **14-1400**. (A duplicate copy of this form is enclosed.)
6. ☐ A check in the amount of \$\_\_\_\_\_ is enclosed.
7. ☐ A new oath or declaration in compliance with 37 CFR 1.63 is included since this application is a continuation-in-part which discloses and claims additional matter.
8. ☒ Amend the specification by inserting before the first line the sentence:  
  
This application is a ☐ continuation-in-part, ☒ continuation, ☐ division, of application number 08/616,538, filed 3/15/96, now abandoned.
9. ☐ Priority of foreign application number \_\_\_\_\_, filed on \_\_\_\_\_ in (country) \_\_\_\_\_ is claimed under 35 U.S.C. 119.
10. ☐ The prior application is assigned of record to NORTON COMPANY
11. ☒ The power of attorney in the prior application is to: (name & address) Mary E. Porter, Reg. No. 33,440; David Bennett, Reg. No. 28,821; Stephen L. Borst, Reg. No. 26,606; Volker R. Ulbrich, Reg. No. 24,748 and Thomas M. DiMauro, Reg. No. 35,490; Norton Company, 1 New Bond Street, Box Number 15138, Worcester, Massachusetts 01615-0138
12. ☒ Also enclosed: IDS Statement, PTO Form 1449 and citations, copy of Petition and Fee for Extension of Time.

Address all future correspondence to: (May only be completed by applicant, or attorney or agent of record)

Mary E. Porter, 33,440  
Norton Company  
1 New Bond Street, Box Number 15138  
Worcester, Massachusetts 01615-0138

It is understood that secrecy under 35 U.S.C. 122 is hereby waived to the extent that if information or access is available to any one of the applications in the file wrapper of a 37 CFR 1.62 application, be it either this application or a prior application in the same file wrapper, the Patent and Trademark Office may provide similar information or access to all the other applications in the same file wrapper.

7-14-97  
Date

Mary E. Porter  
Signature

Mary E. Porter  
Typed or printed name

- ☐ Inventor(s)  
☐ Assignee of complete interest  
☒ Attorney or agent of record  
☐ Filed under 37 CFR 1.34(a)  
Registration number if acting under 37 CFR 1.34(a). \_\_\_\_\_



Docket Number F-3278 C

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re application of: Skeem, et al

Serial Number:

Examiner:

Filed: July 14, 1997

Group Art Unit: 3203

For: Metal Single Layer Abrasive Cutting Tool Having a Contoured Cutting Surface

The Commissioner of Patents and Trademarks  
Washington, D.C. 20231

Sir:

**PRELIMINARY AMENDMENT**  
**FILE WRAPPER CONTINUATION APPLICATION**

This amendment addresses the Advisory Office Action mailed on June 12, 1997, in U.S. Serial Number: 08/616,538, filed March 15, 1996, the parent application to this FWC application. Claims 1 - 34 were pending in the parent application and Claims 2 and 27 were withdrawn from consideration as being directed to a non-elected species. Claims 1, 3-26 and 28-32 were rejected under 35 USC Section 102(b) over US Pat. No 5,215,072 to Scott ("Scott"). Claims 1, 3-26, and 28-32 were rejected under 35 USC Section 103(a) over Scott. Applicants respectfully traverse these rejections.

Applicants also are filing this FWC application to permit consideration of prior art cited in a search report in an equivalent patent application filed in the European Patent Office. This prior art is not of record in the parent application.

**REMARKS**

Applicants refer to the comments filed on June 2, 1997, made in response to the Final Rejection. The Advisory Action indicates "In the specification, page 19, lines 9-17, the applicant discloses that brazing provides a chemical bond for adhering the abrasive grains to the abrasive element." Looking to the precise language on page 19, Applicants state "It is believed **some** brazes used in conventional SL tools can be used in ...the ...invention....The braze must provide a chemical bond which is strong enough to resist the simultaneous peeling of lower cutting levels...."

The claims require a chemical bond between the abrasive grain and the core or tool substrate. Most conventional brazes chemically bond to the core but not to the abrasive grain. Only “active” or “reactive” brazes chemically bond to both the grain and the substrate. Applicants’ position with respect to the differences among the invention tools and the prior art tools is the following (-- denotes a chemical bond; X denotes no chemical bond) :

- 1) Invention: Core--Braze--Abrasive Grain
- 2) Conventional Brazed SL Tool : Core--Braze X Abrasive Grain
- 3) Asada Electroplated Tool : Core X Metal Bond X Abrasive Grain
- 4) Scott Brazed Mesh Tool : Mesh--Braze X Abrasive Grain.

Only the invention provides a chemical bond among all three elements. Because hard ceramic materials have surfaces that are notoriously difficult to “wet”, a mechanical coating with a metal--either brazed or electroplated--on diamond or CBN is quite a weak bond.

The Applicants’ position is reflected in paragraph 3 of the Buljan declaration where he states an electroplated tool is inferior in a grinding performance test to a “brazed single layer tool made with a bronze braze that is chemically bonded to the diamond abrasive.” In paragraphs 4 and 5, Buljan gives his opinion as an expert in this technology that cutting tools made with an active braze in place of an electroplated bond would exhibit the same types of performance improvements in tool life and tool wear as did the grinding tools he had tested. His opinion is based on the differences in strength and durability of the mechanical bond to the grain formed in electroplating versus a chemical bond to the grain formed with an active braze.

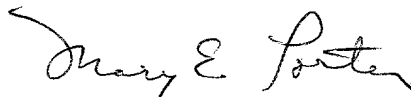
To chemically bond diamond or CBN abrasive grain to a metallic substrate surface, the bonding agent is preferably an active braze or other composition comprising an element reactive with the carbon or the nitride on the surface of the grain to form a carbide or nitride compound. For example, the preferred reactive braze used in the invention may contain a nickel-chromium material, or a bronze-titanium material. (See page 19, lines 9-17.) Under appropriate brazing conditions known to those skilled in the art, the titanium forms titanium carbide material at the surface of the diamond grain, thus creating a chemical bond to the braze and the substrate. In addition, the grain may be coated (physically or chemically) with a material such as titanium or tungsten which also chemically bonds the abrasive grain to the components of the braze under brazing conditions (See page 19, lines 20-22).

For these reasons, Applicants' claims require a chemical bond between the abrasive grain and the tool, in addition to all other elements of the claimed invention. The claimed tool made with chemically bonded abrasive grain is neither disclosed nor suggested in the cited art.

### CONCLUSION

In view of the remarks submitted herein, Applicants respectfully request reconsideration of the rejection and an allowance of the claims.

Respectfully submitted,



Mary E. Porter  
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Phone Number 508-795-2555

Date: July 14, 1997  
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